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Revised Swelling Analysis of the RERTR-12 Experiment

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ABSTRACT

The RERTR-12 experiment evaluated the irradiation performance of monolithic U-10Mo fuel plates having a Zr-diffusion-barrier. The RERTR-12 mini-plates served to isolate the fission density and fission rate effects. The experiment was irradiated from moderate to high power and removed at a wide range of fission densities. The non-destructive examinations were used to assess fuel behavior and performance. The destructive examinations were completed and used to feed back into prior analysis and neutronics. This report discusses the revisions and findings based upon the new data available for RERTR-12. Results are used to assess the mechanical integrity, geometric stability, and stable and predictable behavior of the fuel system. The main focus of this report is the corrected burn-up profile, irradiation history, corrected thickness values, and the understanding of current U-Mo swelling trends.